EPA Environmental Technology Partnerships

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Cooperative Research and Development Agreement with Perkin-Elmer Corporation

Monitoring Equipment for Hydrocarbon Ozone Precursors and for Hazardous Volatile Organic Compounds

'articipants

This Cooperative Research and Development Agreement (CRADA) brings together research scientists from 'erkin-Elmer Corporation and the U.S. Environmental Protection Agency's (EPA) Atmospheric Research and Exposure Assessment Laboratory (AREAL), in the Office of Modeling, Monitoring Systems and Quality Assurance, Office of Research and Development.

'urpose

This CRADA was initiated to combine the facilities nd resources of AREAL and Perkin-Elmer to develop methds in order to comply with Title I and Title III of the Clean .ir Act Amendments of 1990, (CAAA). Objectives included ıe development of: (1) an automated gas chromatograph to ıonitor ozone hydrocarbon precursors as mandated by Title (2) sampling and analytical equipment for the monitoring f volatile organic compounds (VOCs) indicated in Title III; ıd (3) equipment accessories for analysis of whole air ımples from canisters.

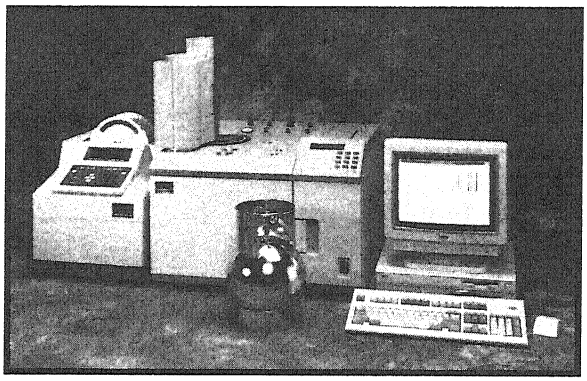
ackground

AREAL has performed and sponsored substantial reearch to determine the presence, source concentration, and ffects of environmental contaminants. The Perkin-Elmer orporation designs and manufactures instrumentation for ımpling and analysis of VOCs. Their technology has been ısed on the use of solid multisorbent packings to concenate and release VOCs and on uniquely designed VOC ɔncentrators that do not require the use of liquid cryogens.

The design, development, and testing of automated ɟuipment for ambient air sampling was conducted during is CRADA. The EPA influence has been to channel the ientific effort at Perkin-Elmer in directions that benefit the gency in its effort to promote the evolution of new measureent technologies.

esults

This CRADA is near completion. As a result, the EPA ıd its clients in state and local agencies as well as industrial users have three new commercially-available instruments that address CAAA monitoring issues. One instrument operates automatically to monitor hydrocarbon ozone precursors with periodic updates as required by Title I. Instruments of this type are already being widely used at several state agencies. A major advantage of the instrument is that ozone precursors are concentrated without the need for liquid cryogen. This feature eliminates the expense and the trouble of frequent commercial deliveries of liquid cryogen to the monitoring site.



Ozone precursor monitoring system

A second instrument is used to sequentially sample ambient air onto solid multisorbent tubes. This unit is being used for both ambient and indoor air sampling toxic VOCs. The third instrument is an accessory to Perkin-Elmer's Model ATD 400 automated thermal desorber and allows the analysis of canister samples with the ATD 400 as well as the standard tube analysis.

This is one of more than 50 cooperative research and development agreements EPA has with various U.S. businesses, consortiums, trade associations, academic institutions, and state and local governments under the Federal Technology Transfer Act of 1986. These agreements serve as a mechanism for EPA to work with private industry to develop new pollution prevention and control technologies, and efficiently bring them into the marketplace.

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